is found by setting off the lead *g* from *h* and drawing a perpendicular to the valve circle, giving the position of the eccentric with the crank at X_r

When the main-crank angle is *<j>,* the eccentric-crank angle is *$ +* (90 + 0),

</> + 90 + a + *(9* — a),

.e.

— *(9* — a), the eccen-

therefore the main crank is at —*(6* — a), putting *$* tric-crank angle is

—*(9* — a) + 90 + a + *(6* — a),

i.e. 90 + a,

and, as already seen, admission begins when the eccentric-crank angle is (90 + a). Hence to find the point of admission set off in fig. 15$, = *(6* — a), drawing the angle in the negative direction.

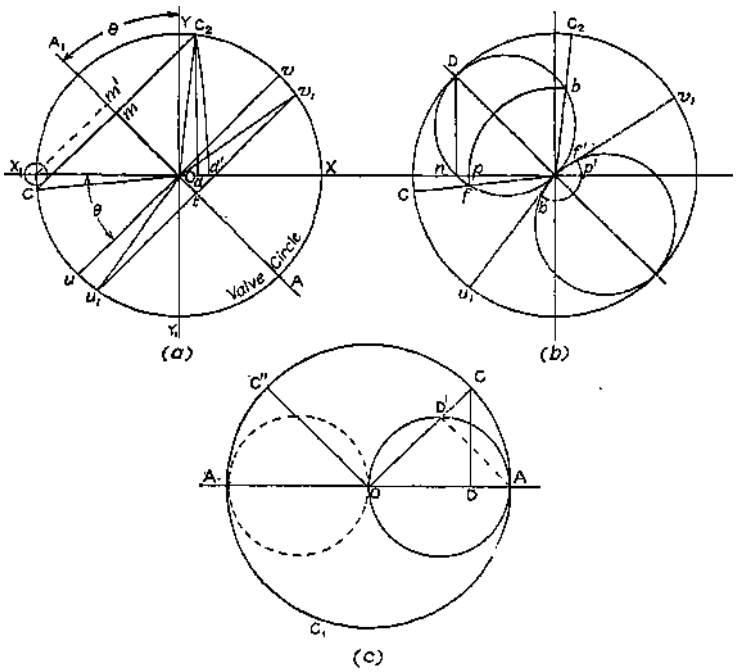

Fig. 16.—a, Reulaux Valve Diagram. 6, Zeuner Valve Diagram, c, Zeuner Circles

Similarly when *cf>* is /? — *(9* — a), the eccentric angle is /3 — *(6* — a) + 90 + a + *(9* — a), i.e. 90 + (a + /?), i.e. from fig. 15 *b.* C_2 corresponds to the position of the main crank at cut-off, then angle *C]QC₂* is *(6* — a).

The important information wanted is the position of the main crank or the piston at the important events of *admission, cut-off, release,* and *compression.* Since the valve diagram leads the crank diagram by (90 + *6),* all that is

now required is to rotate the valve diagram backwards through (90 + *6),* and read it as a crank diagram. This is done in fig. 16 *a,* where *Ou* is the line *Ou* of fig. 15 *b* rotated backwards through (90 + *8),* i.e. *Ou* is drawn at *6* on negative side of OX^ Through O draw AA' perpendicular to *Ou.*